

What is claimed is:

1. An n-channel semiconductor device comprising:
a semiconductor substrate on which a silicon
germanium film, a carbon-containing silicon film and a silicon
5 film are formed in this order and
a gate electrode on the semiconductor substrate with
intervention of a gate oxide film,
wherein a channel region of the semiconductor device
is formed in the carbon-containing silicon film.
- 10 2. A p-channel semiconductor device comprising:
a semiconductor substrate on which a silicon
germanium film, a carbon-containing silicon film and a silicon
film are formed in this order and
a gate electrode on the semiconductor substrate with
15 intervention of a gate oxide film,
wherein a channel region of the semiconductor device
is formed in the silicon germanium film.
3. A semiconductor device according to claim 1 or 2,
wherein the silicon germanium film contains 10 atom% to 40
20 atom% of germanium and has a thickness of 5 nm to 50 nm.
4. A semiconductor device according to claim 1 or 2,
wherein the carbon-containing silicon film contains 0.1 atom%
to 1 atom% of carbon and has a thickness of 5 nm to 50 nm.
5. A semiconductor device according to claim 1 or 2,
25 wherein the semiconductor substrate is a single crystal silicon

substrate.

6. A semiconductor device according to claim 1 or 2,
wherein the semiconductor substrate is an SOI substrate.

7. A complementary semiconductor device wherein a
5 semiconductor device as set forth in claim 1 and a
semiconductor device as set forth in claim 2 are formed on the
same semiconductor substrate.

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